

II. Rejections Under 35 U.S.C. §112

Claims 1 and 2 stand rejected as indefinite. The Examiner contends that the following terms are indefinite:

(a) "alkali-swelling associative thickener" (claim 1);

(b) "polar solvent containing water" (claim 1);

(c) "dissolves and swells in alkaline area in the polar solvent" (claim 2);
and

(d) "in a proportion of 0.1 to 8% by weight (polymer component) based on the ink composition" (claim 2).

In response to (a), claim 1 is amended to recite a thickener "which swells in an alkaline medium."

In response to (b), claim 1 is amended to recite that the polar solvent "comprises water and other solvents."

In response to (c), claim 1 is amended to delete "in an alkaline area." The Examiner is requested to take note that claim 1 requires a pH controlling agent, which acts to adjust the alkalinity of the polar solvents.

In response to (d), claim 2 is amended to delete the parenthetical term "polymer component."

In view of the action taken, it is believed that the above-referenced rejections under 35 U.S.C. §112 have been overcome, and it is respectfully requested that the rejections be withdrawn.

III. Rejections Under 35 U.S.C. §103

Claims 1 and 2 stand rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,580,374 to Okumura et al., either alone or in view of U.S. Patent No. 5,425,806 to Doolan et al. and U.S. Patent No. 5,478,602 to Shay et al. The Examiner states that Okumura describes an aqueous ink composition for ballpoint pens, wherein the ink contains water, a polar solvent, a pigment, a pH adjuster, and 3% of a thickener which comprises polymers containing both carboxyl groups and hydrophobic groups. The Examiner explains that the only element of the claims not shown in Okumura is that the thickeners "are not explicitly referred to as alkali-swelling associative thickeners." The Examiner states that "it is natural to infer that these polymers would function the same as the thickeners presently claimed regardless of what they are called by Okumura et al."

Applicants respectfully traverse this rejection. It is noted that in Okumura, the resins used in the amount of 3% in Examples 1-4 and 7 (ammonium salt of styrene-acrylic acid resin or ammonium salt of styrene-maleic acid resin) do not act as thickeners but as dispersants. Applicants respectfully direct the Examiner's attention to Okumura, at column 4, line 48 to column 5, line 26, which describes these compounds as water soluble dispersants. Okumura teaches the use of synthetic polymers as thickeners (see column 6, lines 9-28). The synthetic thickeners are different than the claimed thickeners which swell in an alkaline medium, and do not function the same as those presently claimed. The thickeners in Okumura are not alkali-swelling associative thickeners, i.e., they do not swell in an alkaline medium.

The Examiner's attention is also respectfully directed to comparative Examples 3 and 4 in the specification of the present application (at page 23), which illustrate that poly acrylic acid (which is one of the specific thickeners in Okumura) does not result in ink compositions having the same favorable physical properties as the claimed thickeners.

Doolan describes a thickening composition containing an associative thickener which thickens in an aqueous system. Doolan discloses that a surfactant allows an associative thickener to be lowered in viscosity in water without using an organic solvent. However, Doolan does not describe the effect of the thickener used in an ink composition or that the ink composition is stable over a long period of time without settling of the pigment at a low viscosity.

Shay discloses thickeners for aqueous systems. The thickener is an alkali-swellable complex hydrophobe associative thickener and results in low blade pressure at much higher viscosity compared to conventional thickeners, when used for a coating composition. Like Doolan, Shay does not mention the effect of the thickener used in an ink composition or that the ink composition is stable over a long period of time without settling of the pigment at a low viscosity.

Thus, one of ordinary skill in the art would not be motivated from the combination of Okumura, Doolan and Shay to form the claimed ink composition.

In view of the arguments made, it is believed that the above-referenced rejection of claims 1 and 2 has been obviated, and it is respectfully requested that the rejection be withdrawn.

Claims 3 and 4 (which also recite the presence of a pigment surface treating agent), stand rejected as obvious over Okumura either alone or in view of Doolan and Shay as applied to claims 1 and 2 above and further in view of either of U.S. Patent No. 4,822,417 to Kobayashi et al. or JP 54138732. The Examiner takes the position that the difference between Okumura (either alone or in view of Doolan and Shay), is that claims 3 and 4 require a pigment surface which is treated with a resin and/or a surfactant.

The Examiner contends that Kobayashi describes the use of pigments which are surface-treated with resins in order to improve dispersibility, stability and workability. The Examiner also contends that the JP' 732 abstract describes the use of pigments which are surface treated with resin in order to improve the stability and water resistance to the ink compositions.

Applicant respectfully traverses this rejection on the grounds of the obvious argument in response to the rejection of claims 1 and 2.

Further, it is respectfully submitted that Kobayashi describes oil soluble ink compositions, containing oil soluble dyes and pigments. Kobayashi et al. does not describe or suggest the use of surface active agents in aqueous compositions.

In view of the arguments made, it is believed that the above-referenced obviousness rejection of claims 3 and 4 has been overcome, and it is respectfully requested that the rejections be withdrawn.

IV. Conclusion

In view of the foregoing, it is believed that pending claims 1-4 are not indefinite, nor are they obvious over the prior art of record. It is believed that claim 1-4 are now in condition for allowance.

Favorable action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Martin E. Goldstein', written over a horizontal line.

Martin E. Goldstein
Reg. No. 20,869
Attorney For Applicant(s)

DARBY & DARBY P.C.
805 Third Avenue
New York, NY 10022
(212) 527-7700

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